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Behind the Power Curve:

The Regular Air Force Pilot Shortage's Effect on Air National Guard Fighter Squadrons

by

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Abstract

The Active Component (AC) of the Air Force is aggressively examining solutions to its fighter pilot shortage, a deficit currently estimated at approximately 500 pilots and growing. The consequences are significant shortfalls in test positions, initial training instructor pilots, and staff positions. While many solutions have been proposed, further information needs to be garnered surrounding how these alternatives may impact the Air National Guard (ANG). This research seeks to examine the first and second order effects of insufficient numbers of AC pilots on ANG fighter squadron aircrew management dynamics.

In the fiscal and political climate of sustaining today's Air Force, substantial funding increases or fundamental changes to the ANG component are unlikely. It is then appropriate to ask, "What happens to ANG fighter squadrons' readiness when an increased number of AC fighter pilots may be joining the ANG or a decreased number of fighter pilots may be available to affiliate?" The scenario-planning framework is used to examine the required elements that make up the fighter force enterprise, followed by comparative examples that illustrate logical outcomes. Nearly all the current intellectual content on the subject is oriented toward problem identification tied to studies of alternatives and effects on regular Air Force (RegAF) personnel. The aim of this research is to analyze the potential benefits or detriments of the current RegAF pilot shortage to ANG manning.

Introduction

As of October 2015, the regular Air Force (RegAF) is authorized 3500 fighter pilots to meet operational needs with the ability to assign just less than 3000. [1] As a result, the Air Force (AF) has prioritized line combat squadrons to staff at 100%. Given this non-linear supply-and-demand problem, the Active Component (AC) must find holistic solutions, which include the Air National Guard (ANG), before production and absorption levels reach unrecoverable lows.

The ANG is increasingly managed as an operational force alongside the AC and as such, must be prepared to fulfill operational obligations. The transition from a strategic reserve to an operational reserve is well documented. In his 2015 paper *Demystifying the Citizen Soldier*, Raphael Cohen catalogues the inevitable evolution of citizen soldiers to professional force. [2] Integral to the scope of this research, he further dispels the modern misperceptions of the ANG; namely that it is a legacy construct with competing interest and little operational utility. In fact, the ANG alone comprises 31% of the Air Force's fighter capacity and executes nearly all air defense missions. [3] At the same time, the ANG fighter force is asked to offset AC mobilization rates to Southeast Asia and the Balkans, fulfilling Combatant Commanders' requests for theater presence. These are clear indicators that the ANG must be equally evaluated for its fighter force health.

The fighter pilot shortage was forecast as early as 2000 and many of the force management decisions made at that time are manifest in the current dilemma. In 2009, William Taylor, author of *Fighter Drawdown Dynamics: Effects on Aircrew Inventories*, details the impending crisis, summarizing the "…competing goals of producing sufficient

experienced combat pilots and operating within the constraints of force structure reductions". [4] Part of that analysis is predicated on a relatively small but consistent affiliation of experienced AC pilots to the Reserve Component (RC). The ANG has historically used this model for gaining capability with little individual training investment. Consequently, with a reduction in available RegAF pilot inventory, he recommends that the RC become self-sustaining through increased organic production of initial fighter qualification training. However, this view omits an important reality; inexperienced pilots require increased resources and investments, which the ANG is not currently resourced to produce.

It is important for the Total Force to find an equitable balance and refine the forcing functions to produce, absorb, and sustain the dwindling fighter pilot force. 25 of the 42 recommendations from the 2014 National Commission on the Structure of the Air Force (NCSAF) submitted to the President involve or are affiliated with the RC. [5] This may not be a move away from the ANG but a move towards it. According to the National Commission, "The combination of full-time and part-time positions should be determined for each unit depending on weapons system requirements, deployment and rotation schedule". [6] And yet, it does not specifically examine ANG fighter pilot manning.

The solutions for this problem are varied and complex, as are the effects on ANG fighter pilot manning dynamics. The ANG is sourced from two avenues, affiliations of separated AC personnel and direct accession of personnel. In 2014, the RAND Corporation published findings on the suitability of missions for the RC. [7] Part of those conclusions state that absorption of AC pilots must be finely managed. With too few, the

unit cannot build experience and with too many, it cannot sustain it. The focus of this research is to clarify how that ANG balance is impacted by the RegAF fighter force deficiencies.

The AC Air Force fighter pilot shortage may eventually lead to manning and readiness limitations in ANG fighter squadrons. While the AC remains a consistent source of experienced fighter pilot affiliation for the ANG, smaller AC pilot numbers to attract from may mean fewer affiliations amid increasing ANG operational demands. [8]

The scenario-planning framework is used to conduct this research. A focused look at the supply and demand of current AC Air Force fighter pilots will identify the key contributors to the Total Force production, sustainment, and absorption model. Each factor will be assessed for its degree of importance and uncertainty. The contributors are then placed into two categories, predetermined elements and critical uncertainties. The resultant components of these categories will be integrated to form a simple but useful analytic tool. In this case, predetermined elements are considered static, whereas critical uncertainties are considered dynamic or variable. The synthesis of the elements will be examined for three alternative futures for the ANG, expected, best, and worst outcomes. These results will enable ANG fighter squadrons to better prepare for a potential manning surplus or deficiency of experienced AC-to-ANG fighter pilot affiliations. Finally, this information will highlight predictive indicators to better prepare the ANG fighter readiness challenges of the future.

Elements of the AC Pilot Inventory

"Your Air Force understands balancing combat capability, capacity, and full spectrum readiness is a strategic imperative."

-FY 16 Posture Statement[9]

To properly orient the analysis, it is important to first understand the fundamental elements of aircrew dynamics and their relationship to one another. The three elements that determine AC pilot inventory viability are production, absorption, and sustainment and each is dependent on the other for long-term growth. Production refers to the capacity to train new pilots. Absorption is the capacity to introduce new pilots into operational squadrons and provide enough training to be considered an experienced pilot. Sustainment is defined as maintaining sufficient numbers of experienced pilots to regulate the demand for new pilots. The basic tenet of operational aircrew management is to ensure the correct amount of skill and experience exists at each level, thereby meeting the operational requirements of the Air Force.

Introducing new pilots into the inventory, also referred to as the "training pipeline", is the fundamental first step in the production, absorption, and sustainment system. Fighter pilot production consists of a series of training programs, including Undergraduate Pilot Training (UPT), Introduction to Fighter Fundamentals (IFF), and Formal Training Unit (FTU). Required additional non-flying courses are Water Survival Training and Land Survival Training. With no interruptions, the cumulative training time from UPT to completion of FTU is 20 months and spans multiple training locations. Within each course are instructors, maintainers, and support staffs that generate a fixed but sizeable training expense. A substantial investment of fiscal, intellectual, and

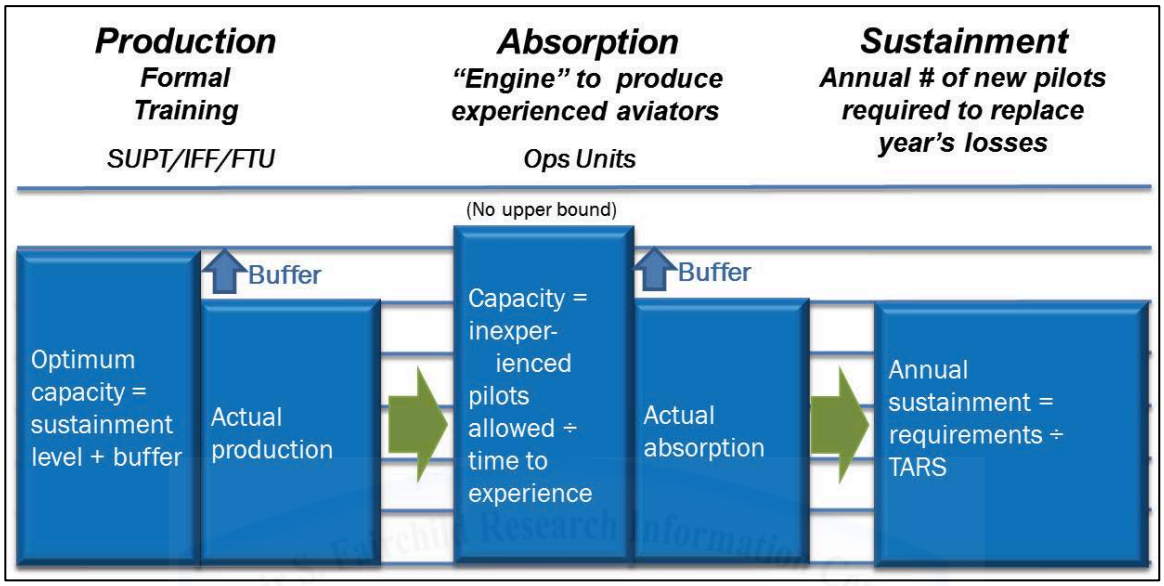
manpower resources is made when generating the training requisites before a pilot can be absorbed into an operational squadron.

Absorption of new fighter pilots is the capacity for placement of FTU graduates into operational fighter squadrons in an inexperienced role. The threshold to become an experienced pilot is 500 flying hours, or as published by individual mission design series (MDS) training publications. Inexperienced pilots require continued resources as they progress through sequential training "gates" mandated by the Ready Aircrew Program (RAP). Their monthly RAP requirement is higher than experienced pilots and in many cases inexperienced pilots must fly with an experienced pilot in the flight. In this way, the proper proportion of each is critical to maintain system balance. However, absorption does not have a fixed upper limit; it can be overextended, though it has negative consequences. According to William Taylor of RAND, "Over-absorption decreases the number of monthly sorties inexperienced pilots can fly, lowers the average experience level of fighter units, makes it difficult or impossible for new pilots to become experienced in an initial-three year tour, and increases the amount of time a pilot must wait between a first flying tour and an opportunity for a second one, thus slowing the development of the background and experience elements needed to make the pilot useful in staff or supervisory positions." [10]

The third factor of the AC pilot inventory capacity is sustainment. Assuming total pilot requirements remain static, sustainment is equal to the number of pilots exiting the AC inventory. Exiting the inventory is accomplished through retirement, promotion, or early separation. Increasing sustainment, or keeping more experienced pilots for longer than their required Total Active Rated Service (TARS), reduces absorption capacity and

in turn, reduces production needs. Figure 1 illustrates the dependent relationship and proper balance between production, absorption, and sustainment.

Figure 1. Fundamental Elements of Pilot Management [11]



As of October of 2015, 192 inexperienced fighter pilots entered absorbing positions in the AC operational force. At the same time, 315 fighter pilots were retired, promoted, or separated. The net inventory loss for fiscal year (FY) 2015 was 123 pilots. In FY14, that loss was 180 pilots and is estimated to be approximately 150 pilots in FY16. This trend indicates the need to increase supply and/or decrease demand. However, as Figure 1 shows, making changes to one category necessitates changes to the other two. The following chapter discusses the contributing sub-elements relative to AC pilot inventory capacity to better understand how the ANG may be affected.

Understanding the Sources of the RegAF Imbalance

"Gaining and maintaining air and space superiority in increasingly contested environments will be our toughest mission and highest priority."

-General Mark A. Welsh III[12]

Within the elements of production, absorption and sustainment are key contributors to each. Attributing them to each element illustrates the cross-section of their fixed and uncertain qualities, further isolating where AC deficiencies are greatest. This is critical for understanding how the ANG will be affected and necessary to utilize them as "levers" in the later synthesis.

Fighter Force Demands – Sustainment

A steady-state demand for US fighter forces has existed for 25 years. In 1998, the Project on Defense Alternatives institute noted this in a report titled, The Readiness Crisis of the U.S. Air Force. The report explained, "Military airlift crews on average do not face a burden today that is substantially greater than that of the Cold War period, while for fighter/attack units the demands are only modestly higher. There have been localized excesses, however, due to the misdistribution of operational tempo among assets and commands." [13] While this statement holds true today, it is true for different reasons.

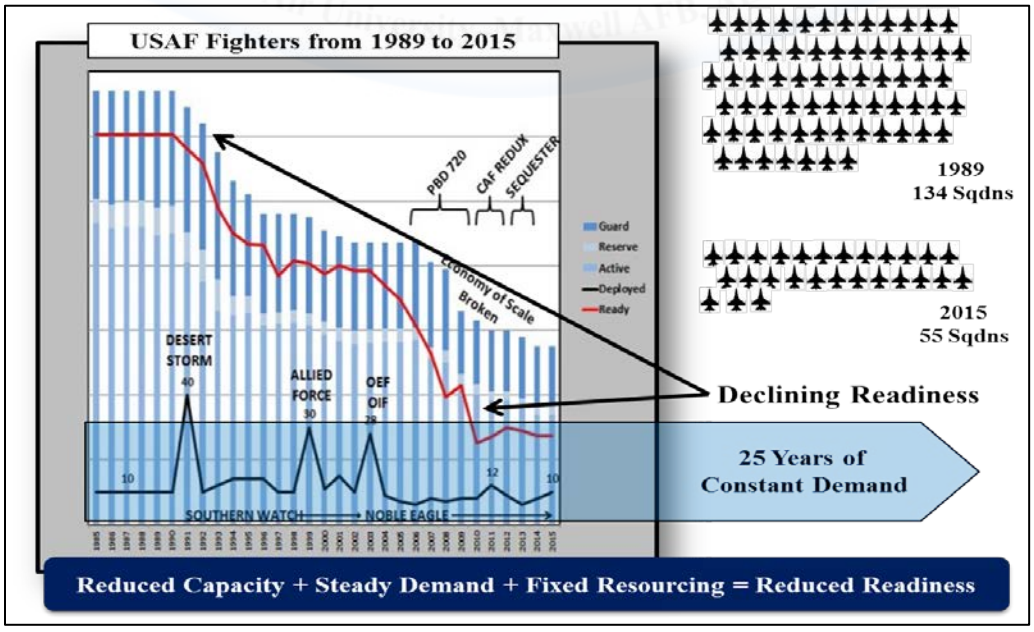
A significant reduction in the number of fighter squadrons and increased contingency operations has kept the demand steady for the last quarter century. "The decision to reduce the size of the Air Force to Combatant Commander requirements now requires that the entire force must be ready at all times, which means no strategic reserve capacity for the service to respond to unanticipated requirements." [14] Requirements such as the air campaign against the Islamic State, checking increased Russian assertiveness in Eastern Europe, and denying Chinese expansion in the Spratly Islands are a few of the

recent military efforts calling for US air superiority and precision attack. Squadrons not actively involved in contingency operations must still maintain readiness through deployed exercises, home station flying, and mandatory unit training with fewer Total Force fighter squadrons to supplement the deployed rotation.

Fighter Force Structure – Absorption

The AF has continually reduced fighter force structure requirements since Operation DESERT STORM ended. In 1989, the AF had 134 fighter squadrons. [15] Today it has 55 across the Total Force, with 40 of those "combat coded", or "aircraft assigned to meet the primary aircraft authorization to a unit for the performance of its wartime mission." [16] Figure 2 depicts the impacts to readiness with a declining number of fighter squadrons (capacity) since 1991 and steady operational demand amid tumultuous administrative and legislative periods.

Figure 2. Readiness Impacts of Fighter Demands on Force Structure [17]



After each major conflict, the Air Force has made 'strategic exchanges', trading capacity for capability in the face of austere fiscal circumstances. Payment for improved

capability across all core mission areas has largely come from reductions in personnel and conventional airpower, further decreasing the number of cockpits to place inexperienced pilots.

Pilot Training Throughput Capacity – Production

Within the force structure discussion, two components are worthy of increased examination: pilot training capacity (supply) and expanding F-35 requirements (demand). The Air Force is pursuing a replacement for the current fighter trainer aircraft - the T-38 Talon. In use for over 50 years, this venerable system is losing efficiency due to age and training relevancy in the era of 5th generation operational fighters. The AF plans to replace the Talon with a follow-on system, labeled T-X, until contract award. However, the AF will only procure 350 T-X aircraft, with expected initial operating capability (IOC) in 2024. Today, there are 500 T-38's for use in producing fighter and bomber manning requirements. As stated earlier, 192 UPT graduates were eligible for absorption into the fighter force in 2015; 2013 and 2014 production quantities were very similar. This indicates that current throughput for UPT graduates has and will remain steady until the next trainer is IOC. Yet, when it does, less trainer aircraft may mean a drop in production numbers at a time when absorption capacity increases sharply to meet forecasted demand.

F-35 Requirements – Absorption

Another force structure-related contributor is the influx of increasing quantities of F-35 Lightning II Joint Strike Fighters (JSF) into the total aircraft inventory (TAI) over the next decade. The AF is on contract to purchase 1763 JSF's over the lifetime of the program and they will be placed in all three AF components. By way of comparison, the

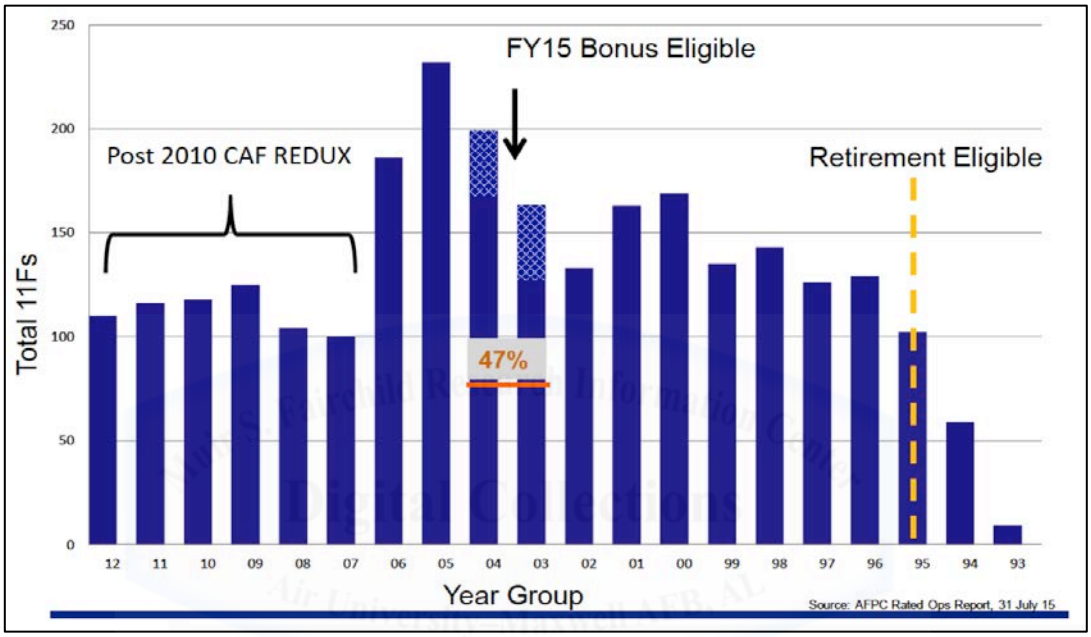
current Total Force inventory consists of approximately 2000 fighter aircraft. Thus, when F-35 production is complete in the late 2020's, the JSF alone will make up the equivalent of 88% of today's fighter TAI. This situation means absorption capacity must and will increase; while production remains steady, this places a potential critical strain on sustainment. Additionally, the near term F-35 basing schemes will not trade JSF's into a replacement squadron for 4th gen aircraft at a 1:1 ratio; there will be a transition period where squadrons are made up of both types of aircraft. As a result, there will be a small surge in absorption capacity as both legacy and new aircraft are needed to maintain currencies while transitioning qualifications during JSF "bed-down".

AC Retention Rate – Sustainment

The RegAF is failing to meet its fighter pilot retention goal, or put another way, keeping a qualified 11F Air Force Specialty Code (AFSC) in the AF when the option to separate exists. This is perhaps the single greatest contributor to the imbalance problem today and, as noted earlier, sustainment can moderate production. Measured in years of rated service, the present TARS average is 14.8 years, slightly below the historical norm and is declining. At the same time, Aviation Retention Pay (ARP) acceptance rate is 47%. The ARP, also referred to as the 'bonus', is an incentive to qualified fighter pilots (and other distressed career fields) offering stipulated reenlistment for additional annual pay. In FY13, the acceptance rate was 52% and in FY14, 46%. Declining ARP rates directly correlate to overall RegAF sustainment health and are a clear near-term indicator of future inventory imbalances. Figure 3 illustrates that from 1993 to 2005, the total number of fighter pilots in the inventory continued to grow. Given the 10-year commitment of TARS, this means that active and inactive total inventory fighter

experience peaked in 2015. 2007 saw the fewest fighter pilots enter rated service than any year in the decade prior. If ARP acceptance continues to remain near 50%, then 2017 may retain less than a quarter of fighter pilots produced in the peak of 2005. This is cause for concern in the sustainment model.

Figure 3. Total Fighter Pilots by Year Group[18]



While many reasons are postulated for the lack of retention in the RegAF, the most commonly acknowledged contributor is the dramatic increase in airline hiring, luring quality-trained military pilots to the lucrative commercial sector. Over the next 20 years, the Boeing Co. estimates the airline industry will need 95,000 pilots, with an industrial supply base to produce 64,000 over that same time. This will inevitably lead to a competitive environment that offers increasing financial incentives that far outweigh those offered by the AF. As stated above, AF pilots are eligible for separation from the AC after 10 years of rated service, at an age and experience level ideally suited for airline hiring. Both mobility and fighter pilots will have achieved the necessary hours in a demanding environment that translates easily to commercial requisites. At the same time, pilots may have the option to affiliate with either the AF Reserve or ANG while pursuing an airline career. The separation rates from the RegAF and affiliation percentage to the ANG in the midst of airline hiring is central to the scope of this research.

Understanding the ANG Affiliation-Accession Balance

"Our biggest concern is not retaining pilots, it's retaining the full-time pilots."

Maj Gen Brian G. Neal

Understanding the RegAF imbalance is only one half of the analysis in determining how the AC fighter pilot shortage will affect the ANG. The Total Force production, absorption, sustainment model must also account for contributing factors in gaining and keeping qualified personnel in the ANG. Similar to the RegAF section, this discussion includes fighter force demands, manning practices, and training capacity as they relate to the ANG.

ANG Manning Practices – Absorption

The ANG fighter pilot manning processes are different from the RegAF and their complexity must be acknowledged to understand the production and absorption affects. First, there is no central personnel center that manages a qualified base of fighter pilots from which to fill deficits. Appropriate ANG pilot levels are actively managed annually, sometimes monthly, at the unit-level within each state's corporate structure. While the state military headquarters allocates the appropriate number of employment authorizations and control grades to accomplish the unit mission, it is incumbent on the Wing to hire the right mix of experienced and inexperienced Active Guard Reserve (AGR) personnel (full-time), Drill-Status Guardsman (DSG) (part-time), and Technicians (civil military) to maintain proper readiness. Finding the appropriate balance takes routine engagement with squadron pilots who may be resourced differently to assess personal and civil obligations outside the scope of uniformed service. The capacity of an ANG member's military service may change rapidly; managing this flexibility represents

a substantial portion of the responsible leader's workload. Often, this role may rest with the Operations Group Commander (OG/CC) or may be delegated to the Squadron Commander (SQ/CC).

ANG aircrew management dynamics are directly impacted by AC-to-ANG affiliation fluctuations. In 2000, the RAND Group published a study called "Fighter Pilot Shortage – A Crisis for Operational Units". A small section devoted to Guard and Reserve manning issues outlined the interrelated supply and demand nature of affiliating pilots separating from the RegAF.

> "Guard and Reserve fighter units recruit the vast majority of their pilots from active-duty losses, which usually occur at the end of the initial active duty service commitment (end-ADSC). The heavy active duty losses that generated the current pilot shortage form a sizable pool of qualified applicants from which the Guard and Reserve units have been able to select new hires. For several years, hiring in these units has been demand-constrained in the sense that there are fewer part-time billets available in these units than there are qualified pilots separating from active duty. This hiring advantage will vanish in FY2002 when 400 pilot cohorts start to reach end-ADSC. These units will then have an extremely difficult time finding qualified personnel leaving active duty at end-ADSC. As the ADSC transitions from eight to ten years, this effect will continue through FY2009, which means these units could suffer during the hiring drought."[19]

Rather prophetically, RAND describes the predicament that may exist in 2017. Recall from the previous retention section that there is nearly a 50% drop in the total AC fighter pilot inventory available to separate from FY16 to FY17. What amounts to a sustainment issue within the RegAF, equates to an absorption issue in the ANG. The AC will have fewer separations over previous years due to the smaller total inventory available to do so, and may correspondingly cede fewer affiliations to the ANG. In other words, the ANG must sustain its current fighter force or increase production to account for inevitable losses.

ANG Training Capacity - Absorption

As compared to an AC fighter squadron, the ANG's small fleet dynamics, reduced maintenance availability, and 24/7 Homeland Defense readiness requirements limit the training opportunities of what most ANG fighter squadrons can generate. As a result, the ANG inexperienced fighter pilot's quality and repetition of flying events varies based on the squadron makeup, or ratio of inexperienced-to-experienced pilots. Fewer inexperienced pilots directly correlates to increased availability for inexperienced training, because the inexperienced pilot requires more flight and training events. Correspondingly, higher numbers of inexperienced pilots creates increased demand (flight training events) for a fixed resource (aircraft and experienced pilot availability). Absorption is the capacity to introduce new pilots into operational squadrons and provide enough training to be considered an experienced pilot. The RAND Corporation acknowledges the realities of ANG absorption limitations, as well.

> "Most Guard units also train limited numbers of pilots (typically no more than one per unit per year) from scratch. The individual is sent through a commissioning program as well as UFT and FTU, which translates into a two-year full-time commitment prior to returning to the unit. This must be followed by several years of essentially full-time flying in the unit to age adequately and become experienced in the aircraft. Reserve units, on the other hand, rely almost entirely on pilots who gained their training and experience on active duty." [20]

Understanding the ANG lacks the organic resources to produce substantially increased numbers of experienced aviators, the emphasis then shifts toward retention as a method to govern the need for increased production.

Fighter Force Demands – Sustainment

Sustainment in this context is influenced by both internal and external factors. Three primary elements contribute to increased or decreased ANG fighter pilot retention:

limited full-time resources, airline hiring, and operations tempo rates. First, whether a pilot affiliated or was directly accessed to the ANG, the desire for professional, financial and personal stability often increases with seniority. That stability can be provided by assuming an AGR position within the State and generally does not preclude flying duty. As of 2016, pilots with TARS of 10 years or more may be eligible for Aviation Retention Pay (ARP), which can increase in amount if in a long-term AGR position. These reasons have historically incentivized competition for the few AGR positions available in ANG fighter squadrons. However, a concurrent career in the airlines has perhaps an even greater appeal to a Guardsman than it does for the AC pilot. This may begin to redefine the competition for AGR positions as more experienced pilots assume true part-time service. The result may be an increase in younger and more inexperienced AGR pilots, and a direct increase in sustainment.

Lastly, deployment and operational tempo are key components in sustaining traditional Guardsmen, in particular. The DSG must meet family obligations and employer expectations in conjunction with military service. If routine or contingency deployments consistently interrupt the ability to meet them, the member may separate from service altogether. A decrease in the experienced DSG pilot corps places added strain on the full-time force to meet unit demands. This can make the full-time positions less desirable and again decrease sustainment.

Methodology: Utilizing Critical Uncertainties as "Levers" for Analysis

The previous section focuses on explaining the nature of the key contributors to the production-absorption-sustainment model. This section categorizes those contributors, identifies them as a fixed or uncertain variable, and explores their relationship to each other. The methodology's objective is to isolate which contributors may realistically be adjusted to illustrate overall effects on ANG aircrew management dynamics.

Categorizing Contributors

Through categorization, it becomes apparent where the effects of the RegAF fighter pilot shortage are most impactful. The basis of categorization also relies on the claim that the AC-to-ANG affiliation has a significant effect on ANG fighter squadrons utilizing the rationale of previous sections. It follows then that the predominant limitations of the AC-to-ANG affiliation can be isolated.

Production remains an impediment to increased pilot inventory capacity, primarily due to the UPT throughput, which is caused by the current inability of the USAF training force structure to expand. Decreasing the ANG's annual trainee demands do not contribute in a significant way toward increasing RegAF production. Therefore, the only contributor to production is UPT in a RegAF capacity. Table 1 illustrates the alignment of RegAF and ANG key contributors to the production-absorption-sustainment model.

Table 1. Contributors to RegAF and ANG Production-Absorption-Sustainment[21]

	Production	Absorption	Sustainment
RegAF	UPT	Force Structure	Fighter Force Demands
		F-35 Requirements	AC Retention
ANG	-	Manning Practices	Fighter Force Demands
		Training Capacity	-

Absorption on the other hand, is made up of equal parts RegAF and ANG elements. RegAF force structure, F-35 requirements, ANG manning practices, and ANG training capacity align under the category of absorption, making it the most complex to analyze.

Finally, AC retention rates and demands placed upon the fighter force for both the RegAF and ANG are aligned under the sustainment model. Maintaining sufficient numbers of AC experienced pilots will likely continue to be the primary driver in long-term sustainment. Additionally, given the increasing demand for fighter force capabilities, the AC and ANG alike will need experienced pilots to moderate production and maintain experienced qualifications.

Fixed or Uncertain Quality

To determine logical outcomes of the pilot shortage's effect on the ANG and leverage the contributors in the production-absorption-sustainment equation, an assumed value of fixed or uncertain must be assigned to each. In this way, a scenario can be synthesized where uncertain contributors can drive logical outcomes.

There are fixed and uncertain contributors in both the RegAF and ANG components. The uncertain contributors can be exploited for their variable nature in the equation by dramatically increasing or decreasing their value to determine overall effect

on ANG aircrew management. Under the RegAF category, forecast UPT limitations, steady force structure, known F-35 fielding schedules, and historic demand for fighter forces make up the fixed, or known, elements of the supply-side of the equation. The ANG fixed contributor is the stable fighter force demand that augments the AC.

The critical uncertainties on the demand-side of the equation are the AC retention percentages for FY16, the contingent ANG manning practices, and the ANG training capacity. While the AC total inventory is known for the current TARS year, what is not known is the percentage that will elect to reenlist. Next, the ANG accounts for two variables - inconsistencies in ANG state resourcing and the individual unit training capacity differences. Together, these two contributors make up the allowable input to ANG demand. Table 2 sorts the results into the fixed or uncertain category for ease of analysis.

Table 2. Categorizing Contributors as Fixed or Uncertain[22]

<table>
<tr><th></th><th>Fixed</th><th>Uncertain</th></tr>
<tr><td rowspan="4">RegAF</td><td>UPT</td><td rowspan="4">AC Retention</td></tr>
<tr><td>Force Structure</td></tr>
<tr><td>F-35 Requirements</td></tr>
<tr><td>Fighter Force Demands</td></tr>
<tr><td rowspan="2">ANG</td><td rowspan="2">Fighter Force Demands</td><td>Manning Practices</td></tr>
<tr><td>Training Capacity</td></tr>
</table>

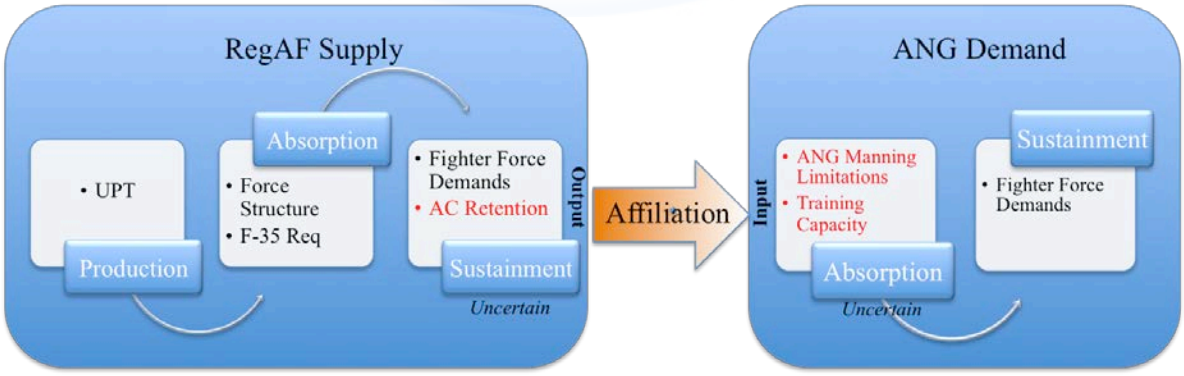
RegAF Supply to ANG Demand

Having assigned a fixed or uncertain value to each contributor, the relationship between the RegAF and ANG can now be explored as an output-input model. To set those conditions, the AC's own production-absorption-sustainment system can be viewed

as the RegAF supply, or output, in the AC-to-ANG affiliation equation. Similarly, the ANG's absorption and sustainment can be viewed as the ANG demand, or input. The ANG production component is omitted because ANG affiliations do not happen until the AC member's TAR service is complete and due to the relatively limited ANG production capability.

This analysis yields at least one uncertain contributor on either side of the output-input model. Figure 4 shows the relationship of contributors by component and under each category of production, absorption, or sustainment, where red contributors indicate an uncertain quality. To further simplify the analysis, it illustrates that RegAF sustainment and/or ANG absorption can be increased or decreased to create reasonable outcomes and assumes that fixed elements remain static in the equation. This is necessary to examine expected, best and worst outcomes of AC-to-ANG affiliation effects.

Figure 4. Output-Input of RegAF Supply to ANG Demand[23]



Scenarios, Results, and Recommendations

The resultant scenarios from previous analysis form three alternative futures for the ANG: expected, best, and worst outcomes. The following section describes the terms of those results while outlining the implications. It is important to note that the output-input model does not account for Total Force health, or the specific health of the AC.

Expected Outcome

If RegAF sustainment continues to decrease and ANG absorption increases, then the supply and demand model is demand limited. The ANG can be more selective with applicants' quality and flexibility to arbitrate the type of service offered in the ANG. This assumes that the increased number of separating pilots intend to affiliate with the ANG. The result is an increase in quality affiliations and a decreased need for inexperienced pilots. It also yields an increase in training capacity, as an increase in experienced pilots offers more training opportunities for existing inexperienced pilots. Another ANG benefit is that affiliated experienced pilots can make greater organizational contributions in statuses other than AGR than an inexperienced ANG-produced pilot. As mentioned above, this flexibility is key to a balanced manning document. In these ways, ANG production is moderated and is consistent with recent affiliation trends.

However, this model is not sustainable. If percentage increases of AC pilots separate year-over-year, then fewer affiliates will be available in the future. Also, the AC will be forced to take drastic steps to maintain the force they have, which may result in a significant reduction in affiliations as compared to historic norms. ANG absorption is expected to increase due to airline hiring, much the same way it may impact the AC's

sustainment model. For these reasons, the expected scenario only temporarily benefits the ANG. Table 3 categorizes each scenario through RegAF Sustainment and ANG Absorption, and its effect on the ANG.

Table 3. Scenario Effects on ANG Aircrew Management[24]

Scenario	RegAF Sustainment	ANG Absorption	Effect on ANG
Expected	Decrease	Increase	**TEMPORARILY POSITVE**
Best	Stable	Stable	**POSITIVE**
Worst	Increase	Increase	**NEGATIVE**

Best Outcome

If RegAF sustainment stabilizes near historic percentages while ANG absorption stabilizes, then the ANG benefits in a long-term, sustainable way. For this to happen, AC retention must stop and begin to slowly increase. At the same time, the ANG absorption rate must also stabilize. To do so, the majority of existing full-time AGR pilots must elect not to pursue an airline career in order to increase sustainment. Consequently, ANG training capacity will stabilize as core experienced pilots are available for training and administrative duty, enabling the part-time force. The net result is a positive effect on both the AC and the ANG. It would signal the kind of incremental growth necessary for two components dependent upon each other.

Worst Outcome

The worst outcome for ANG fighter squadrons is if RegAF sustainment and ANG absorption increase sharply at the same time. This would mean that the AC has found successful institutional policies to reverse the current decreasing retention trend. It would also signify that ANG experienced pilots are vacating both AGR and DSG positions in

favor of outside employment and is irrespective of continued part-time service. Additionally, ANG training capacity may increase due to faster transitions in inexperienced-to-experienced qualifications. Inexperienced pilots flight training availability would increase but the organization suffers from fewer experienced pilots to enable upgrade training. Consequently, there would be more vacancies in the ANG than the further reduced RegAF separations can fill, placing increased demand on relatively fixed production. In the supply and demand model, this scenario becomes supply limited, and it places an increased burden on the existing ANG fulltime and part-time force.

Recommendations

Each scenario portrays the effect of the USAF fighter pilot shortage to the ANG, but this accounts for only one-third of the interconnected aircrew management enterprise. Just as the production-absorption-sustainment model is intertwined, so are the AC, ANG, and AF Reserve. In other words, one component cannot be modified without affecting the other two. The expected outcome for the ANG comes at the expense of future investment in AC-to-ANG affiliations. The worst outcome stems pilot loss in the AC but decreases readiness in the ANG.

To properly grow the fighter pilot ecosystem across all components, slow and steady growth of AC retention coupled with metered ANG absorption increases are needed. Administrative, cultural, and monetary changes have all been proposed as holistic solutions, although, retention can increase too sharply. In the near term, the AC must offer increased financial incentives to reverse the divestment of fighter pilots and sponsor retention. It should then seek to make long-term cultural and administrative managerial change to encourage RegAF commitment over ANG or commercial

alternatives. However, if retention increases from 50% to 100% in a short span, it will interrupt the consistent affiliation the ANG relies on. While the ANG may be able to withstand the demand interruption in the short-term, the long-term affects may reduce the number of experienced pilots that enable the operational reserve construct. Simultaneously, the ANG must also offer moderate financial incentives to preclude it's own full-time pilot losses to the airline sector. Otherwise, decreased sustainment will increase production requirements beyond organic capability. Finally, the ANG personnel end-strength and force structure must not be allowed to decrease, as has happened continuously over the last decade. To do so would decrease Total Force absorption capacity and stifle all components' ability to absorb and sustain experienced fighter pilots.

Conclusion

The AC fighter pilot shortage may lead to manning and readiness challenges in the ANG. The nature of the relationship between the AC and the ANG is increasingly dependent in the fiscally strained, but high-demand defense environment of today. The ANG continues to be managed as an operational force with the AC and all indications suggest this is unlikely to change. The 25-year demand for fighter capability, decreasing force structure, reduced deploy-to-dwell ratios, and non-operational fighter pilot staff requirements highlight the need for modifications to the aircrew management system across the Total Force.

The production-absorption-sustainment model clarifies the progression of fighter pilots within the AC. It can be adopted to include the ANG if viewed as an output, or supply, in the AC-to-ANG affiliation system. Affiliation remains a fundamental source for experienced ANG fighter pilot absorption; without it, the ANG's own aircrew management suffers. Categorizing key contributors to the production-absorption-sustainment model as fixed or uncertain elements simplifies the analysis. It reveals that AC sustainment and ANG absorption are the two components that can be altered to indicate logical outcomes.

This research explains that the best outcome allows for slow AC sustainment increases while moderating steady ANG absorption increases. Rapid increases or decreases in either category may positively impact one component at the detriment of the other. Therefore, sustainable AC financial incentives should be offered quickly to reverse retention trends. Likewise, incentivizing AGR pilots to remain in full-time status maintains core ANG health without placing inordinate burden on its part-time force.

The systemic decrease in AC fighter pilot shortages can be overturned. It requires continued resource and planning investment from both the AC and ANG. Acknowledging their interrelated association is the first and most important step in creating a healthy enterprise. Future solutions should not omit the ANG from the fighter pilot aircrew management equation.

Notes

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[21] Table created by author, sourced from research data and conclusions contained in thesis.

[22] Table created by author, sourced from research data and conclusions contained in thesis.

[23] Figure created by author, sourced from research data and conclusions contained in thesis.

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